

### **What is Claimed is:**

1. A method for making microarrays comprising the steps :
  - a) subjecting the surface of a solid support to an oxidation of chemical groups present on said surface in order to allow the formation of aldehyde functions upon the surface of said solid support; and
  - b) covalently binding upon said aldehyde functions capture molecules designed for the detection, the identification, the quantification and/or the recovery of complementary target biological or chemical molecules of interest; said covalent binding resulting in an array comprising a density of at least 4 or more discrete regions/cm<sup>2</sup> of solid support surface, each of said discrete surface regions being bound with a species of capture molecules.
2. The method according to claim 1, wherein the chemical group being subjected to oxidation is an olefinic group.
3. The method according to claim 1, wherein said oxidation is performed in an aqueous solution.
4. The method according to claim 3, wherein said aqueous solution is selected from the group consisting of an aqueous permanganate solution, an aqueous periodate solution, and an aqueous permanganate and periodate solution.
5. The method according to claim 1, wherein the solid support surface has been previously modified by the addition of olefinic groups upon said surface.
6. The method according to claim 1, wherein the solid support surface is made of a glass layer.
7. The method according to claim 6, wherein the surface of the glass layer is modified by the addition of olefinic silane.
8. The method according to claim 1, wherein the capture molecules are biological capture molecules.
9. The method according to claim 8, wherein the biological capture molecules are selected from the group consisting of a first member of a binding pair selected from the group consisting of an antibody, a hypervariable portion of an antibody, an antigen, a hapten, a receptor/ligand and complementary strands of nucleotide sequences.

10. The method according to claim 8, wherein the capture molecules are chemical molecules able to bind specific target chemical molecules obtained by combinatorial chemistry.

11. A microarray having at least one surface bearing olefinic groups able to form, following oxidation, aldehyde functions suitable for a binding of captured molecules designed for a binding detection, the identification, the quantification and/or the recovery of complementary target biological or chemical molecules of interest; said covalent binding resulting in an array comprising a density of at least 4 discrete regions/cm<sup>2</sup> of solid support surface, each of said discrete surface regions being bound with a species of capture molecules.

12. A method for making microarrays according to claim 11 comprising the steps :

a) subjecting the surface of a solid support to an oxidation of chemical groups present on said surface in order to allow the formation of aldehyde functions upon the surface of said solid support; and

b) covalently binding upon said aldehyde functions capture molecules designed for the detection, the identification, the quantification and/or the recovery of complementary target biological or chemical molecules of interest; said covalent binding resulting in an array comprising a density of at least 4 or more discrete regions/cm<sup>2</sup> of solid support surface, each of said discrete surface regions being bound with a species of capture molecules.